

# Three new species of the genus *Weintrauboa* Hormiga, 2003 (Araneae, Linyphiidae) from China

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## Abstract

Three new species of the genus *Weintrauboa* Hormiga, 2003 are described here as: *W. denticulata* **sp. nov.** (Hunan, ♂), *W. shenwu* **sp. nov.** (Hubei and Chongqing, ♂♀), and *W. wanglangensis* **sp. nov.** (Sichuan, ♂♀). Detailed descriptions, photographs of genital characters, somatic features, and a distribution map are provided.

**Key words:** Description, distribution, morphology, sheet-web spiders, taxonomy

## Introduction

Linyphiidae is one of the most diverse spider families worldwide, comprising 640 extant genera and 4947 species globally, including 11 fossil genera and 62 species (WSC 2025). In China, approximately 608 species across 182 genera have been documented (Tanasevitch 2025). The genus *Weintrauboa* Hormiga, 2003 includes eight species found in China (Guizhou, Sichuan, Yunnan), Japan, and Russia (Far East, Sakhalin) (WSC 2025). Initially classified within the family Pimoidae Wunderlich, 1986, the genus was transferred to Linyphiidae based on a molecular analysis and reinterpretation of its morphology (Hormiga et al. 2021).

Recent studies of linyphiid spiders have mainly focused on the southern regions of the country: Yunnan Province (Zhao and Li 2014; Irfan and Peng 2018, 2019a, 2019b; Zhou et al. 2018, 2021, 2023; Irfan et al. 2019, 2020, 2021, 2022a, 2022b, 2023a, 2023b, 2024, 2025; Zhang et al. 2022; Yang et al. 2023) and Chongqing Region (Irfan et al. 2023a, 2023b). These studies have not only substantially increased the known diversity of Linyphiidae in Yunnan and Chongqing but also suggest that a significant number of species remain undiscovered in southern China. Future extensive research in this region is likely to reveal more species, further enriching our understanding of this complex and diverse spider family. While examining specimens collected from south China, three new species of the genus *Weintrauboa* were identified and are described here.



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## Material and methods

Specimens were collected by hand picking and sieving leaf litter, and were kept in 75% ethanol. The left male palps were used for photography. After dissection, epigynes were cleared in trypsin enzyme solution before examination and photography. All specimens were examined, photographed and measured using a Leica M205A stereomicroscope and LAS00 software (ver. 4.6). Left male palps and epigynes were examined and photographed after dissection. Compound focus images were generated using Helicon Focus ver. 6.7.1 software. Eye sizes were measured at the maximum dorsal diameter. Legs measurements are shown as total length (femur, patella, tibia, metatarsus, tarsus). All measurements are in millimeters. Specimens are deposited in the School of Life Sciences, Southwest University, Chongqing (SWUC), China. The map was created using the online mapping software SimpleMappr (Shorthouse 2010) (Fig. 7). The terminology used in the text and figure legends follows Hormiga et al. (2021). In the text, “Fig.” and “Figs” refer to figures herein, while “fig.” and “figs” refer to figures published elsewhere.

The following abbreviations are used in the text and figures: **a.s.l.** = above sea level; **AER** = anterior eye row; **ALE** = anterior lateral eyes; **AME** = anterior median eyes; **AME–ALE** = the distance between AME and ALE; **AME–AME** = the distance between AMEs; **ARP** = anterior radical process; **CD** = copulatory ducts; **CO** = copulatory openings; **CP** = cymbial process (CDP in Hormiga 1994); **DP** = dorsal plate; **E** = embolus; **EF** = embolus flap; **FD** = fertilization ducts; **PC** = paracymbium; **PER** = posterior eye row; **PLE** = posterior lateral eyes; **PME** = posterior median eyes; **PME–PLE** = distance between PME and PLE; **PME–PME** = distance between PMEs; **S** = spermatheca; **SPT** = suprategulum; **ST** = subtegulum; **T** = tegulum; **Tml** = position of trichobothrium on metatarsus I; **VP** = ventral plate.

## Taxonomy

### Family Linyphiidae Blackwall, 1859

#### Genus *Weintrauboa* Hormiga, 2003

(文蛛属)

**Type species.** *Labulla contortipes* Karsch, 1881; gender feminine.

#### *Weintrauboa denticulata* sp. nov.

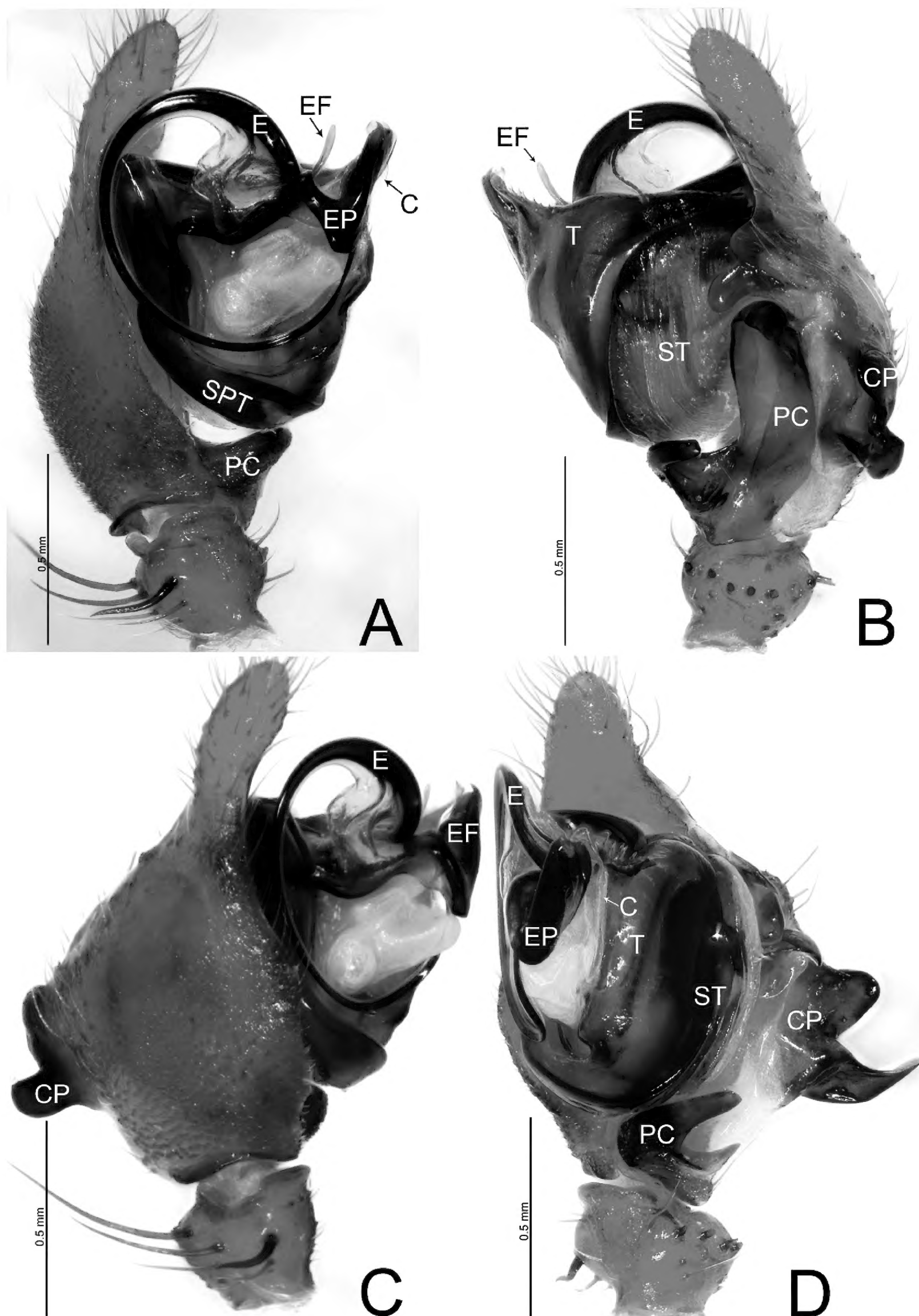
<https://zoobank.org/131F061C-4553-4D40-9306-4741C5DEF9D2>

Figs 1, 6A, 7

(齿文蛛)

**Type material.** *Holotype* ♂ (SWUC-T-LIN-38-01); CHINA, Hunan Province, Changsha City, Yuelu District, Yuelu Mountain, 28°11'33.9"N, 112°56'17.52"E, a.s.l. 208 m, 27.IX.2017, Wang Luyu leg.

**Etymology.** The specific epithet is derived from Latin adjective “*denticulatus*” meaning “toothed”, referring to the tegulum apically toothed in the male palp.



**Figure 1.** *Weintrauboa denticulata* sp. nov., male holotype **A** palp, prolateral view **B** palp, retrolateral view **C** palp, dorsal view **D** palp, ventral view. Abbreviations: CP = cymbial process; E = embolus; EF = embolus flap; EP = embolus process; PC = paracymbium; SPT = suprategulum; ST = subtegulum; T = tegulum.

**Diagnosis.** This new species resembles *Weintrauboa yele* Hormiga, 2008 in having similar embolus in male palp (Fig. 1A–D; Hormiga 2008, figs 2A–C, 3A–C; Hormiga et al. 2021, fig. 6A, B), but can be differentiated by the tegular apophysis with teeth in *W. denticulata* sp. nov. (Fig. 1B, D; vs teeth absent); embolic process

tip grooved in ventral view in *W. denticulata* sp. nov. (Fig. 1D; vs hook-shaped); embolic flap like in retrolateral view in *W. denticulata* sp. nov. (Fig. 1B; vs almost wing-shaped); proximal ramus of cymbial process two times longer than distal one in *W. denticulata* sp. nov. (Fig. 1D; vs both rami almost same in length).

**Description. Male** (holotype, Fig. 6A) total length 5.63. Carapace 2.86 long, 2.23 wide; opisthosoma 2.77 long, 2.13 wide. Eye sizes and interdistances: AME 0.17, ALE 0.16, PME 0.17, PLE 0.14; AME–AME 0.10, AME–ALE 0.09, PME–PME 0.14, PME–PLE 0.16, ALE–PLE contiguous. MOA 0.91 long, front width 0.62, back width 0.51. Clypeus height 0.27. Chelicerae brown, with three promarginal and three retromarginal teeth. Leg measurements: I 11.6 (3.08, 1.11, 2.58, 3.23, 1.60); II 10.96 (2.95, 1.02, 2.53, 3.12, 1.34); III 8.41 (2.47, 0.79, 1.84, 2.32, 0.99); IV 10.26 (2.88, 0.88, 2.45, 2.88, 1.17). Leg formula: 1243.

**Palp** (Fig. 1A–D). Patella as long as tibia, ventrally grooved, dorsally with long thick spine. Tibia cone-shaped, with one retrolateral trichobothrium, retrolateral margin with seven thick spines. Cymbium with an ectal process wider than long, with bifurcated tip, proximal ramus hook-shaped, two times longer than distal one with pointed end, distal ramus tongue-shaped with blunt end; retrolateral margin of cymbium with tongue-shaped projection extending ventrally with blunt tip. Paracymbium bowl-shaped, apically hook-shaped, with median margin edge curved inward. Tegulum large, apically with long tegular apophysis with seven teeth, tip membranous. Conductor membranous, as long as patella, present on apical end of tegulum. Embolus circular with fine tip, embolic flap rod-like slightly curved with blunt tip, embolic process sclerotized, apically tip grooved, parallel to tegular apophysis.

**Female.** Unknown.

**Distribution.** Known only from the type locality, Hunan, China (Fig. 7).

### ***Weintrauboa shenwu* sp. nov.**

<https://zoobank.org/9A89FD67-41A6-4424-8CE9-CD19A91DF5DE>

Figs 2, 3, 6A, B, 7

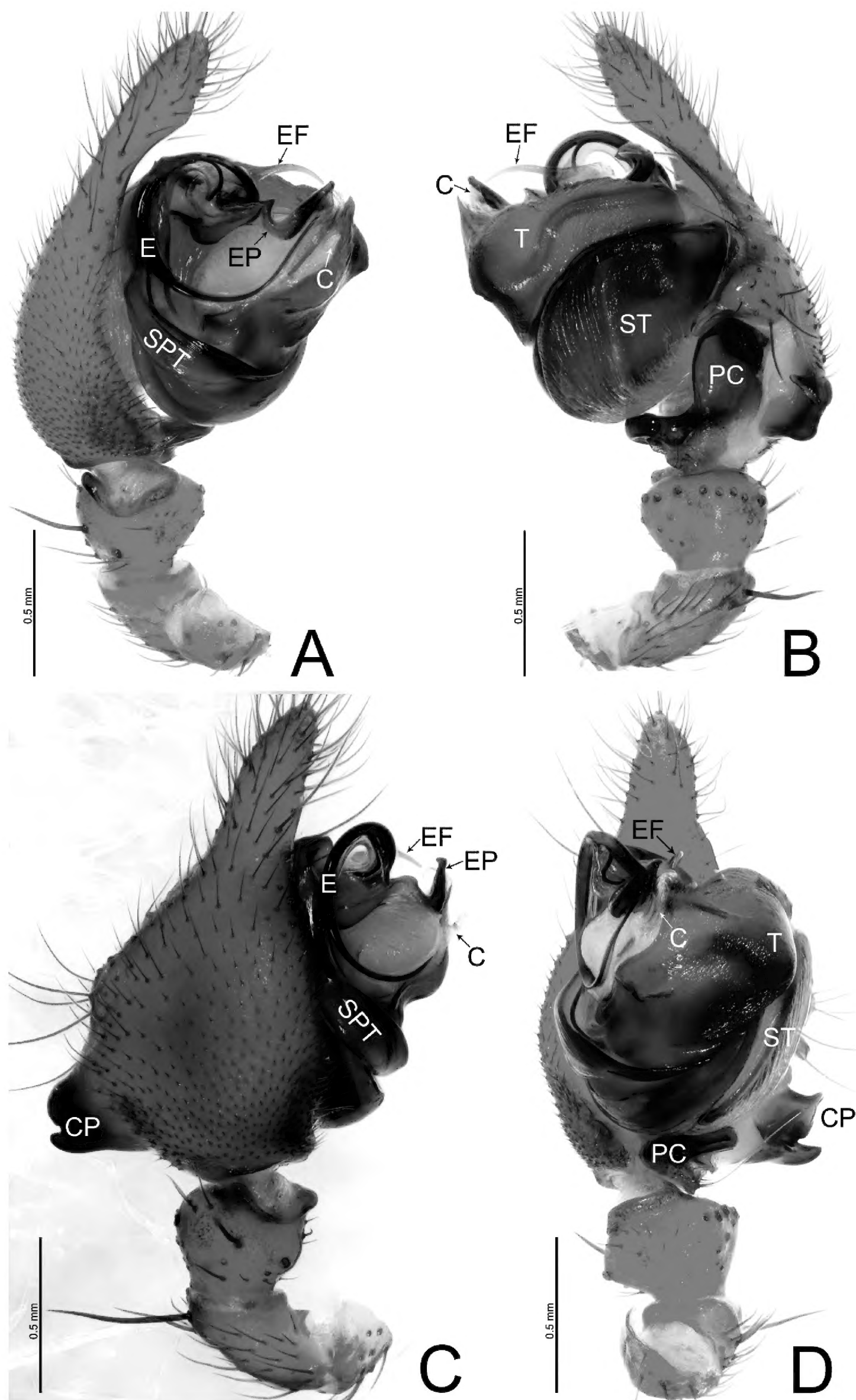
(神巫文蛛)

**Type material. Holotype** ♂ (SWUC-T-LIN-39-01): CHINA, Hubei Province, Shennongjia, Yazikou, 31°30'55.0008"N, 110°19'58.0008"E, 1817 m a.s.l., 24.X.2020, L.Y. Wang, Y. Zhang, J.X. Zhao and J.S. Luo leg. **Paratypes:** 1♀ (SWUC-T-LIN-39-02), with same data as holotype • 2♂2♀ (SWUC-T-LIN-39-03~06), Hubei Province, Shennongjia, Hongping Town, 31°31'27.9957"N, 110°20'9.0416"E, 1711 m a.s.l., 14.VI.2023, Z.S. Zhang, X.L. Chen and Q.L. Lu leg. • **Chongqing Municipality:** 1♀ (SWUC-T-LIN-39-07), Wushan County, Dangyang Town, Xiejia-cao, 31°26'57.00"N, 109°58'45.57"E, a.s.l. 1449 m, 02.X.2021, L.Y. Wang, T.Y. Ren, J.X. Zhao, L. Xiao and X.W. Zhou leg. • 5♂8♀ (SWUC-T-LIN-39-08~20), Wushan County, Guanyang Town, Pingqian, 31°22'22.75"N, 109°56'17.25"E, a.s.l. 1832 m, 04.X.2021, L.Y. Wang, T.Y. Ren, J.X. Zhao, L. Xiao and X.W. Zhou leg.

**Etymology.** The specific name is derived from the Chinese word 'shen' and 'wu'; Shen is the first name for Shennongjia and Wu is an abbreviated name for Wushan; noun in apposition.

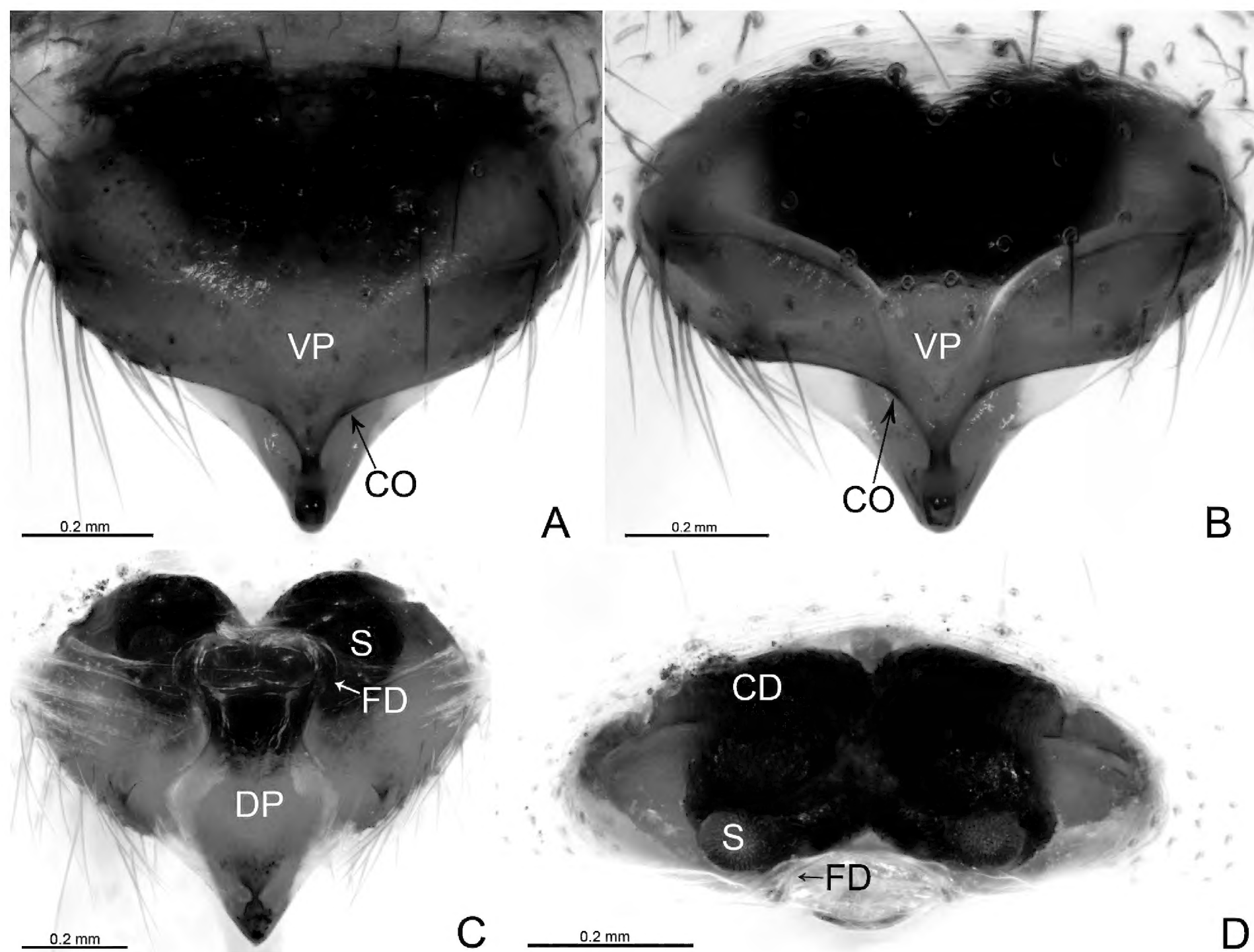
**Diagnosis.** *Weintrauboa shenwu* resembles those of *W. wanglangensis* and *W. yele* Hormiga, 2008 in having a similar embolus and embolic process in male





**Figure 2.** *Weintrauboa shennongjiaensis* sp. nov., male holotype **A** palp, prolateral view **B** palp, retrolateral view **C** palp, dorsal view **D** palp, ventral view. Abbreviations: CP = cymbial process; E = embolus; EF = embolus flap; EP = embolus process; PC = paracymbium; SPT = suprategulum; ST = subtegulum; T = tegulum.

palp (Figs 2A–D, 4A–D; Hormiga 2008, figs 2A–C, 3A–C; Hormiga et al. 2021, fig. 6A–B) and can be distinguished by the embolic flap needle-shaped in *W. shenwu* (Fig. 2A, B; vs horn-shaped in *W. wanglangensis* and wing-shaped in *W. yele*); distal



**Figure 3.** *Weintrauboa shennongjiaensis* sp. nov., female paratype **A, B** epigyne, ventral view **C** vulva, dorsal view **D** vulva, anterior view. Abbreviations: CD = copulatory duct; CO = copulatory opening; DP = dorsal plate; FD = fertilization duct; S = spermathecae; VP = ventral plate.

ramus of cymbial process somewhat rectangular in ventral view in *W. shenwu* (Fig. 2A, B; vs somewhat thumb-shaped both in *W. wanglangensis* and *W. yele*). Females of *W. shenwu* resemble *W. wanglangensis* in having similar morphology of epigyne (Figs 3A–D, 5A–D), but can be distinguished by the copulatory duct comma-shaped in *W. shenwu* (Fig. 3A–C; vs sinuous with three loops before entering spermathecae in *W. wanglangensis*, Fig. 5A–D); dorsal plate posteriorly triangular in *W. shenwu* (Fig. 3A–C; vs trapezoid in *W. wanglangensis*, Fig. 5A–D).

**Description. Male** (holotype, Fig. 6B) total length 7.01. Carapace 3.42 long, 2.39 wide; opisthosoma 3.81 long, 2.55 wide. Eye sizes and interdistances: AME 0.18, ALE 0.22, PME 0.18, PLE 0.18; AME–AME 0.09, AME–ALE 0.11, PME–PME 0.12, PME–PLE 0.17, ALE–PLE 0.02. MOA 0.49 long, front width 0.47, back width 0.49. Clypeus height 0.46. Chelicerae brown, with four promarginal and three retromarginal teeth. Leg measurements: I 21.41 (5.55, 7.19, 6.08, 2.59); II 16.96 (4.63, 5.37, 4.79, 2.17); III 11.15 (3.27, 3.46, 2.93, 1.49); IV 13.44 (3.72, 4.07, 3.69, 1.96). Leg formula: 1243.

**Palp** (Fig. 2A–D). Patella as long as tibia, ventrally grooved, dorsally with long thick spine. Tibia cone-shaped, with one retrolateral and one dorsal trichobothrium, retrolateral margin with eight thick spines. Cymbium with an ectal process wider than long, half the length of tibia, with bifurcated tip, proximal ramus

thumb-shaped and distal ramus somewhat rectangular; retrolateral margin of cymbium with thumb-shaped projection extending ventrally with blunt tip. Paracymbium bowl-shaped, apically hook-shaped, with median margin edge curved inward. Tegulum large, pointed apically. Distal suprategular apophysis sclerotized reduced. Conductor small, membranous, present on apical end of tegulum. Embolus circular with fine tip, embolic flap needle-shaped, slightly curved with pointed tip, embolic process sclerotized, apically expanded with blunt tip, extending towards ventral side of tegulum.

**Female** (paratype, Fig. 6C) total length 7.62. Prosoma 3.32 long, 2.63 wide; opisthosoma 5.05 long, 3.64 wide. Eye sizes and interdistances: AME 0.21, ALE 0.23, PME 0.19, PLE 0.20; AME–AME 0.05, AME–ALE 0.09, PME–PME 0.10, PME–PLE 0.16. ALE–PLE 0.03. MOA 0.56 long, front width 0.44, back width 0.49. Clypeus height 0.38. Leg measurements: I 13.60 (3.67, 4.34, 3.52, 2.07); II 12.12 (3.41, 3.89, 3.03, 1.79); III 9.54 (2.83, 2.87, 2.43, 1.41); IV 11.68 (3.40, 3.69, 3.05, 1.54). Leg formula: 1243.

**Epigyne** (Fig. 3A–D). Epigynal plate 1.5 times wider than long. Most of the atrium divided by septum. Ventral plate oval, anteriorly grooved, posterior margin convex. Copulatory openings present within atrium. Dorsal plate somewhat triangular extending posteriorly. Copulatory ducts elongated, V-shaped in ventral view, forming broad loop extending anteriorly before entering spermathecae. Spermathecae round, separated by distance equal to four times their diameter. Fertilization ducts present mesally.

**Variation.** Males ( $N = 2$ ) total length 5.85–7.01; females ( $N = 2$ ) total length 7.06–8.03.

**Distribution.** China (Hubei, Chongqing) (Fig. 7).

### ***Weintrauboa wanglangensis* sp. nov.**

<https://zoobank.org/8B70618A-53F1-4657-8B3D-EFBAF3966CE8>

Figs 4–6D, E, 7

(王朗文蛛)

**Type material.** **Holotype** ♂ (SWUC-T-LIN-40-01): CHINA, Sichuan Province, Pingwu County, Wanglang National Nature Reserve, Wuyangchang, 32°58'3.8388"N, 104°6'17.9388"E, a.s.l. 2503 m, 24.IX.2019, L.Y. Wang, P. Liu, T. Yuan, Z. Fan, Y. Zhang and M. Zhang leg. **Paratypes:** 22♂15♀, same data as holotype (SWUC-T-LIN-40-02~38).

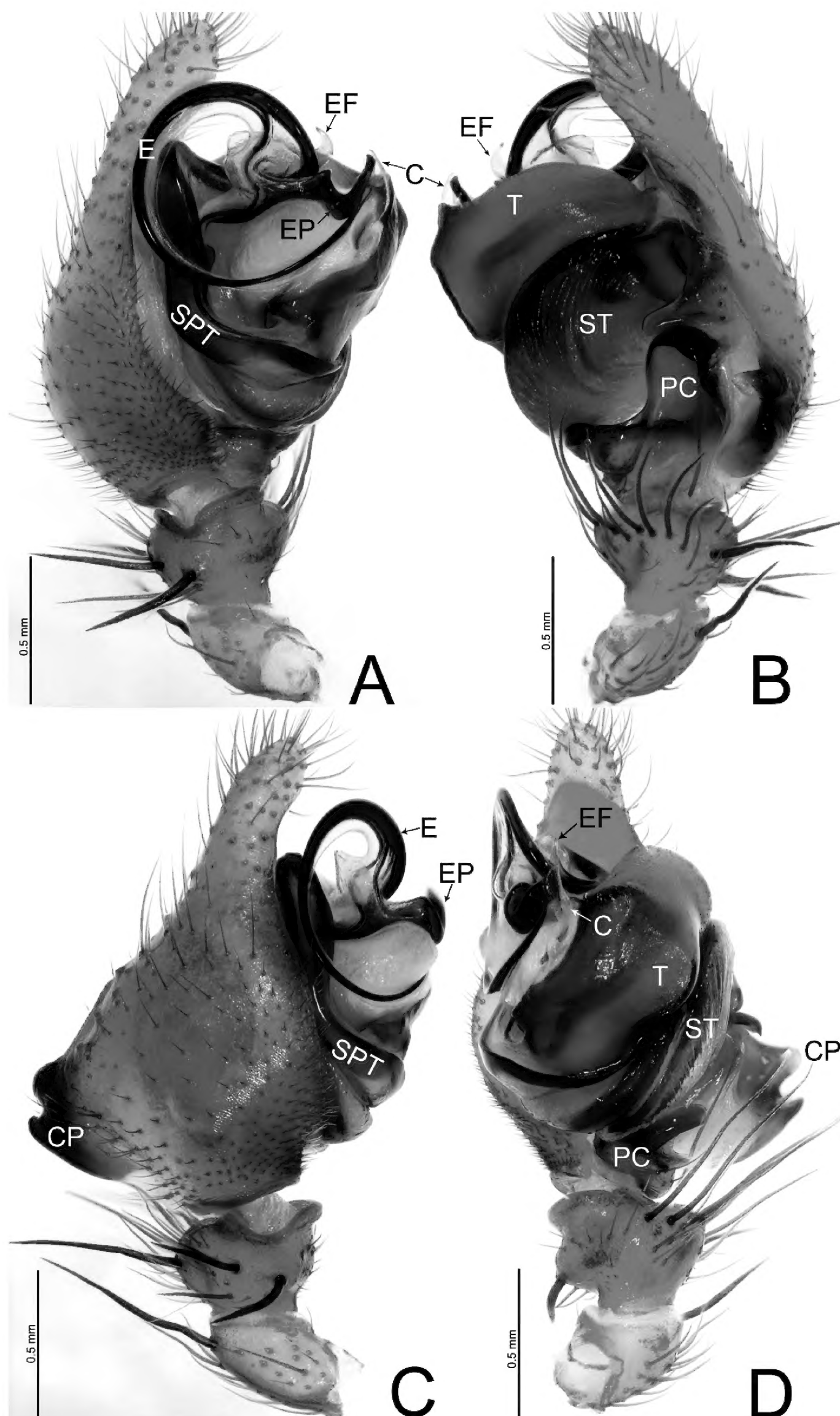
**Etymology.** The specific epithet is derived from the type locality; adjective.

**Diagnosis.** See diagnosis of *Weintrauboa shenwu* sp. nov.

**Description.** **Male** (holotype, Fig. 6D) total length 7.64. Carapace 3.53 long, 2.65 wide; opisthosoma 4.21 long, 2.68 wide. Eye sizes and interdistances: AME 0.22, ALE 0.22, PME 0.18, PLE 0.20; AME–AME 0.10, AME–ALE 0.11, PME–PME 0.13, PME–PLE 0.21, ALE–PLE 0.03. MOA 0.57 long, front width 0.49, back width 0.51. Clypeus height 0.32. Chelicerae brown, with three promarginal and three retromarginal teeth. Leg measurements: I 18.62 (4.84, 6.42, 5.21, 2.15); II 16.57 (4.46, 5.55, 4.62, 1.94); III 10.97 (3.35, 3.50, 2.86, 1.56); IV 13.24 (3.94, 3.99, 3.67, 1.64). Leg formula: 1243.

**Palp** (Figs 4A–D). Patella as long as tibia, ventrally grooved, dorsally with long thick spine. Tibia cone-shaped, with two retrolateral and one dorsal

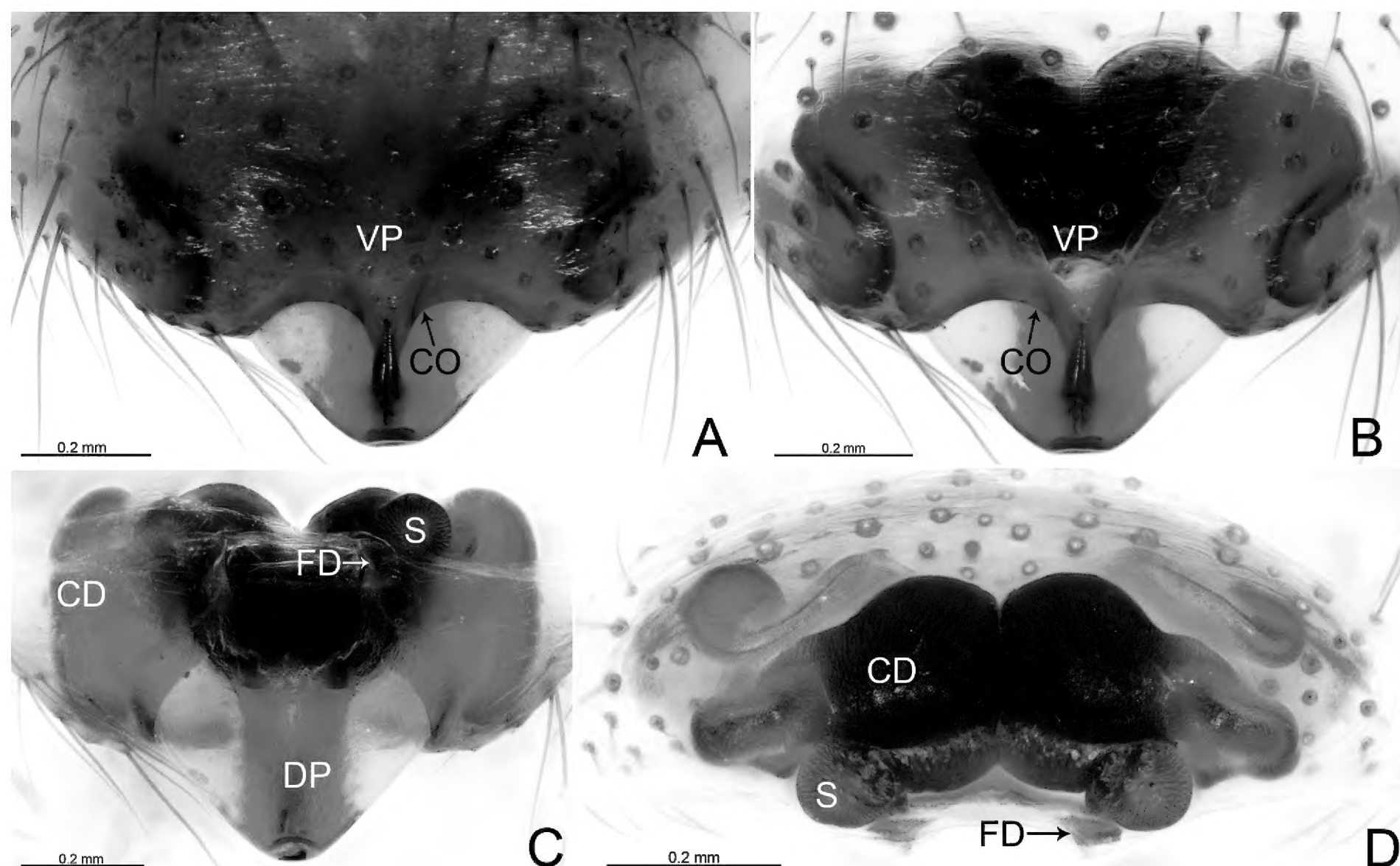




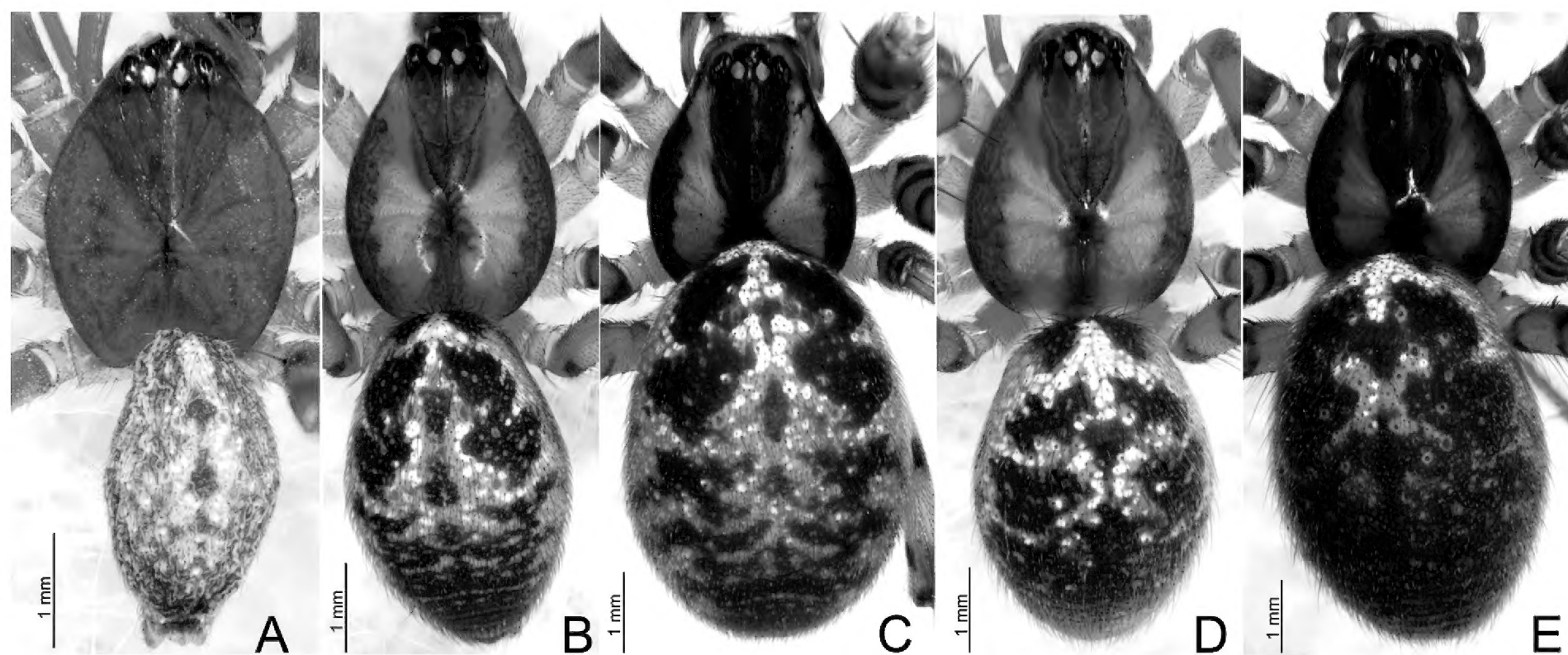
**Figure 4.** *Weintrauboa wanglangensis* sp. nov., male holotype **A** palp, prolateral view **B** palp, retrolateral view **C** palp, dorsal view **D** palp, ventral view. Abbreviations: CP = cymbial process; E = embolus; EF = embolus flap; EP = embolus process; PC = paracymbium; SPT = suprategulum; ST = subtegulum; T = tegulum.

trichobothria, retrolateral margin with nine thick spines. Cymbium with an ectal process wider than long, half the length of tibia, with bifurcated tip, both rami are almost equal in size and shape with blunt end; retrolateral margin of cymbium with thumb-shaped projection extending ventrally with blunt tip. Paracymbium





**Figure 5.** *Weintrauboa wanglangensis* sp. nov., female paratype **A, B** epigyne, ventral view **C** vulva, dorsal view **D** vulva, anterior view. Abbreviations: CD = copulatory duct; CO = copulatory opening; DP = dorsal plate; FD = fertilization duct; S = spermathecae; VP = ventral plate.



**Figure 6.** *Weintrauboa* species habitus, dorsal view **A** *W. denticulata* sp. nov. male holotype **B, C** *W. shennongjiaensis* sp. nov., male holotype (**B**), female paratype (**C**) **D, E** *W. wanglangensis* sp. nov., male holotype (**D**) female paratype (**E**).

bowl-shaped, apically hook-shaped, with median margin edge curved inward. Tegulum large, apically tapering. Conductor membranous, almost half the length of patella, present on apical end of tegulum. Embolus circular with fine tip, embolic flap horn-shaped, curved with pointed tip, embolic process sclerotized, apically with pointed tip, extending towards ventral side of tegulum.

**Female** (paratype, Fig. 6E) total length 9.64. Prosoma 3.66 long, 2.94 wide; opisthosoma 6.09 long, 4.88 wide. Eye sizes and interdistances: AME 0.23, ALE

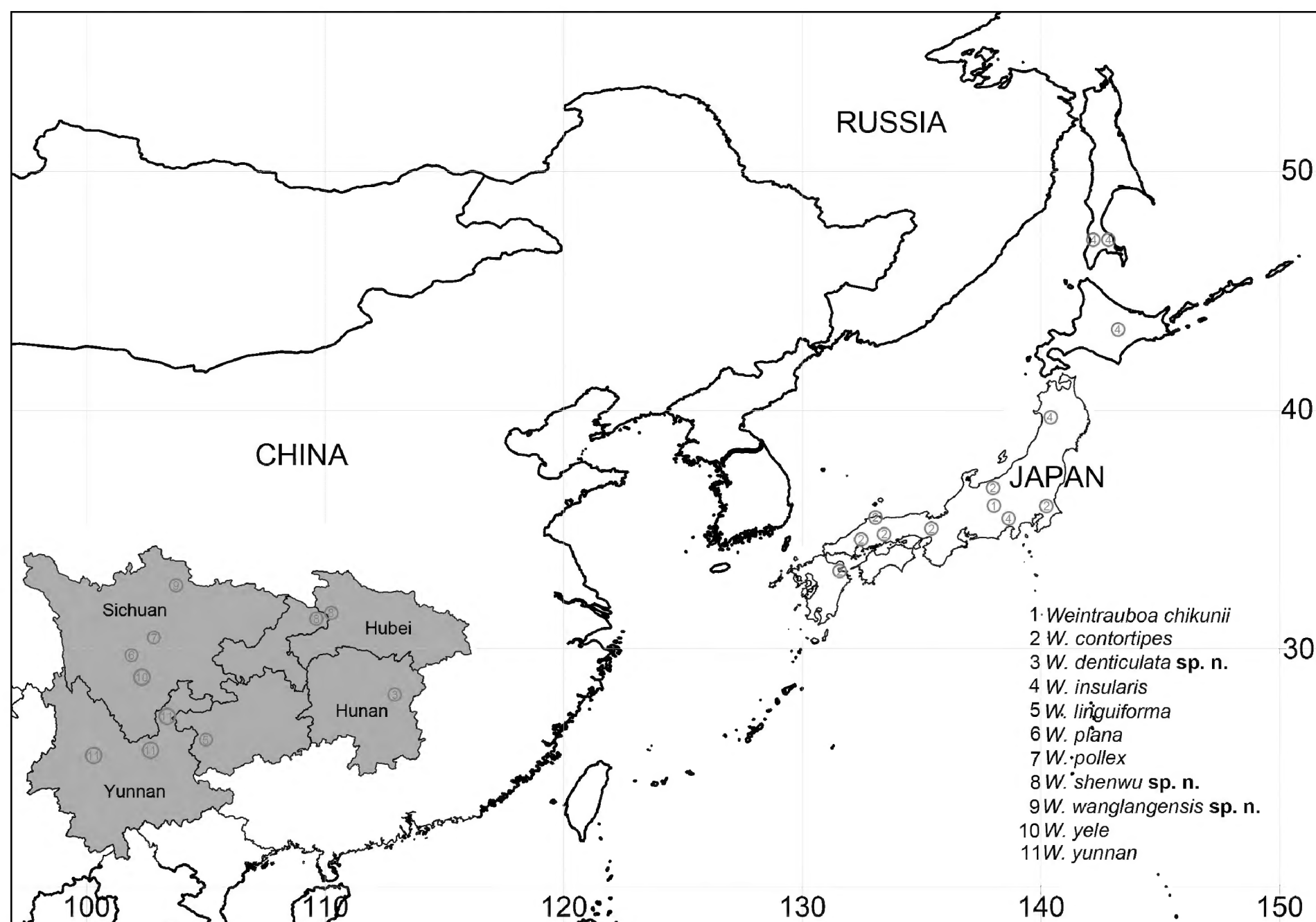


Figure 7. Distribution of *Weintrauboa* species (WSC 2025).

0.25, PME 0.23, PLE 0.23; AME–AME 0.08, AME–ALE 0.16, PME–PME 0.16, PME–PLE 0.20. ALE–PLE 0.02. MOA 0.65 long, front width 0.50, back width 0.60. Clypeus height 0.32. Leg measurements: I 15.87 (442, 5.34, 4.04, 2.07); II 14.46 (4.09, 4.76, 3.70, 1.91); III 10.96 (325, 3.53, 2.77, 1.41); IV 13.62 (3.92, 4.37, 3.42, 1.91). Leg formula: 1243.

**Epigyne** (Fig. 5A–D). Epigynal plate wider than long. Most of the atrium divided by septum. Ventral plate oval, anteriorly grooved, posterior margin wavy. Copulatory openings present within atrium. Dorsal plate somewhat triangular, with broad tip posteriorly. Copulatory ducts sinuous, forming three curved loops before entering spermathecae. Spermathecae round, separated by distance equal to three times their diameter. Fertilization ducts present mesally.

**Variation.** Males ( $N = 23$ ) total length 6.26–7.87; females ( $N = 15$ ) total length 7.37–9.64.

**Distribution.** Known only from the type locality, Sichuan, China (Fig. 7).

## Acknowledgements

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## Additional information

### Conflict of interest

The authors have declared that no competing interests exist.

### Ethical statement

No ethical statement was reported.

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### Author contributions

Data curation: ML. Writing – original draft: ZG. Writing – review and editing: LYW.

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### Data availability

All of the data that support the findings of this study are available in the main text.

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